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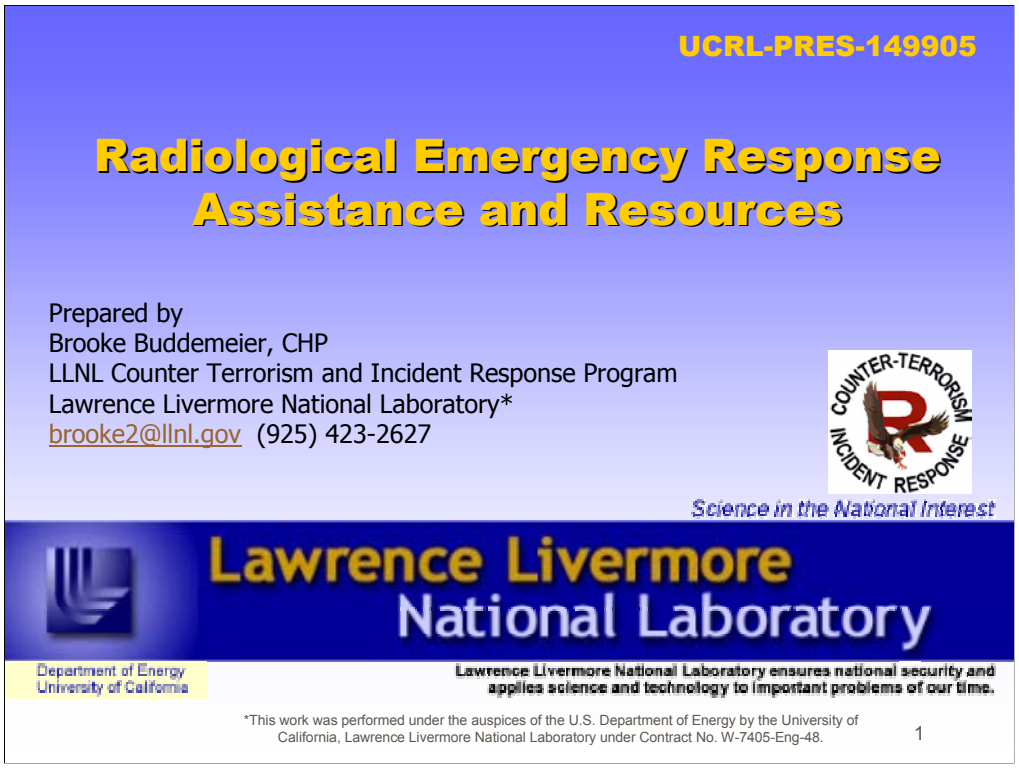
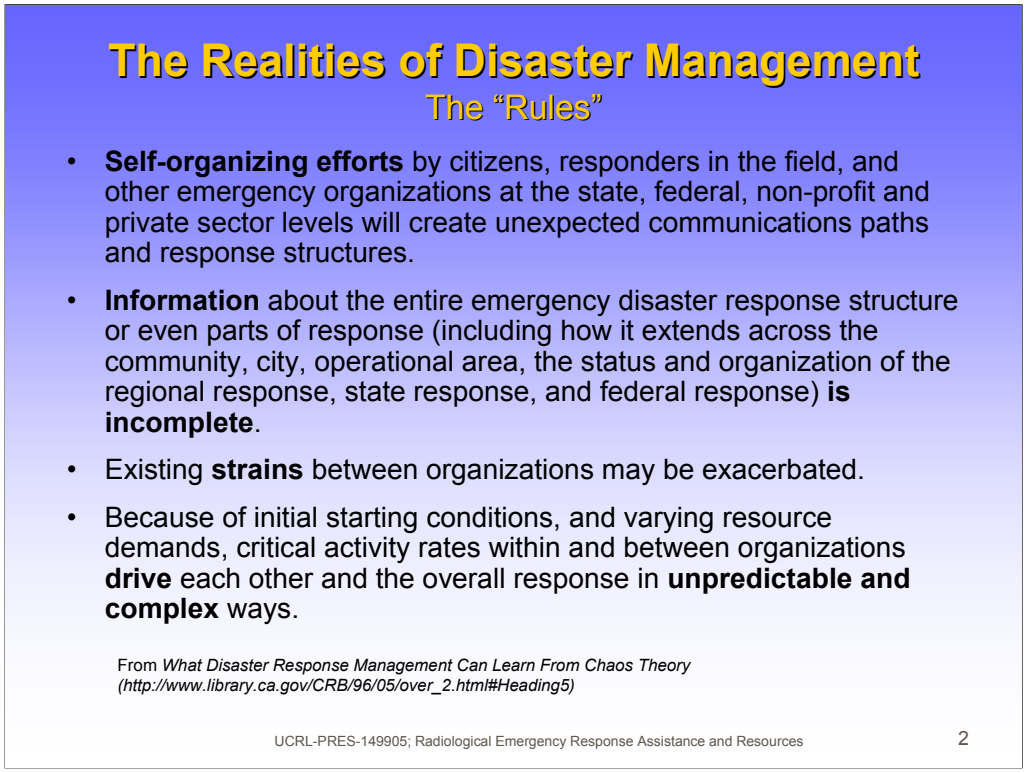


{Note for a well rounded presentation, Obtain information from the State}

Brooke Buddemeier, CHP
Lawrence Livermore National Laboratory
Nuclear Counterterrorism Program



Narrative: Read Slide

Note the "self-organizing efforts." These self-organizing activities should be expected.

For these to be successful, these self-organizers must have some basic awareness of what to do in a radiological situation.

Also note the issue of strains between organizations and the unpredictable and complex influences in a disaster scenario.

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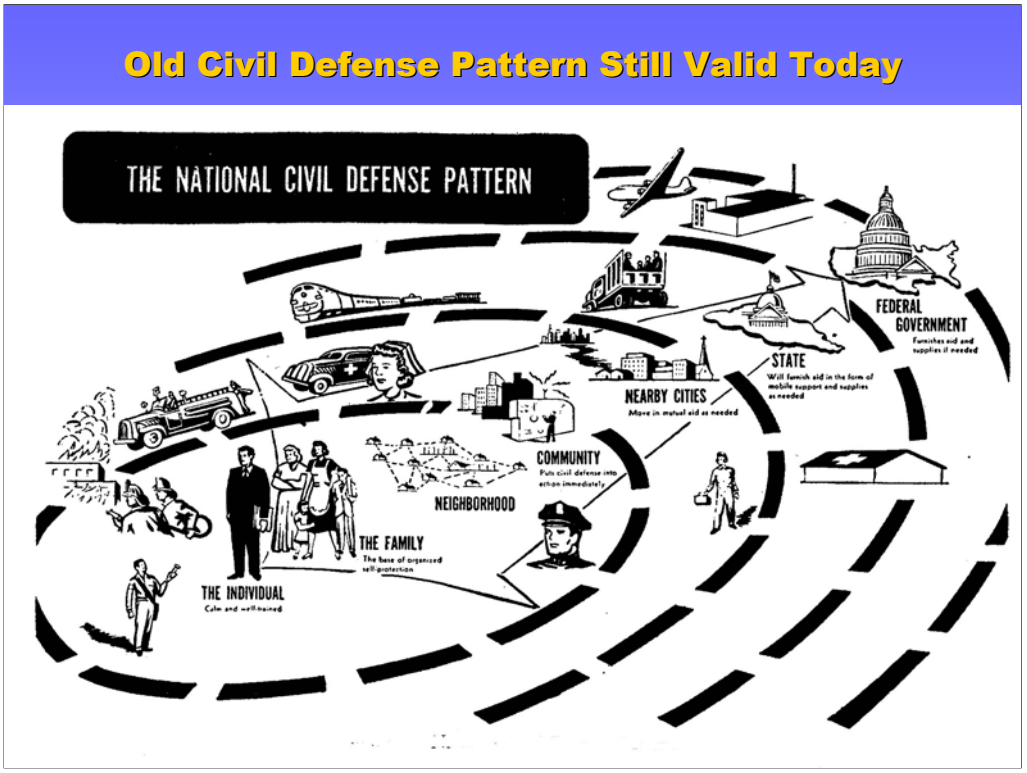
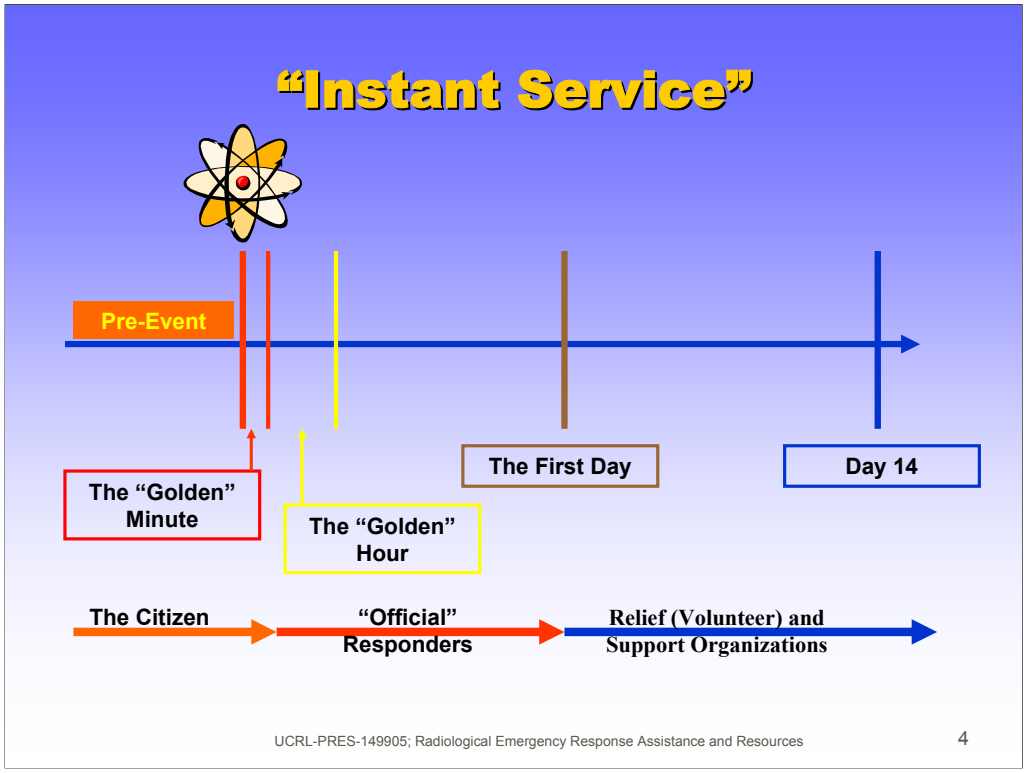
Old Civil Defense Pattern Still Valid Today



Disaster Response is a LOCAL activity. While the state and federal governments may provide assistance, the initial WORK is done by local organizations.

The individual and family play a significant role in these responses. They must be informed of WHEN and HOW to respond.

Not that the caption for “The Individual” says “calm and well-trained.” The annotation for “The Family” says “the base of organized self-protection.” These are messages that are still valid today.



This graph represents how a radiological event would unfold. The expectation is that there would be immediate response to a radiological event, but that "instant" response actually extends over a much wider time period.

1) The actions of the individual within the first few minutes of an event have a profound impact on how the event will unfold. The "pre-event" period is an opportunity to familiarize the citizen with what should be done.

2) Local first responders will have the primary responsibility for the first day following the event (if for no other reason than they are the closest to the scene). These folks need to ensure that they have the knowledge and equipment to deal with a radiological event, recognizing that a radiological event changes the response paradigm to some degree.

3) After the first day, support agencies (many of whom are voluntary in nature) will gradually take over from the first responder community.

4) After about 14 days, the scene will probably shift to a recovery organization and will "normalize" to the extent that it can.

Note that after the first day or two, local personnel resources who are familiar with radiological work practices could become exhausted, this is why additional "specialty" technicians need to be called in early.

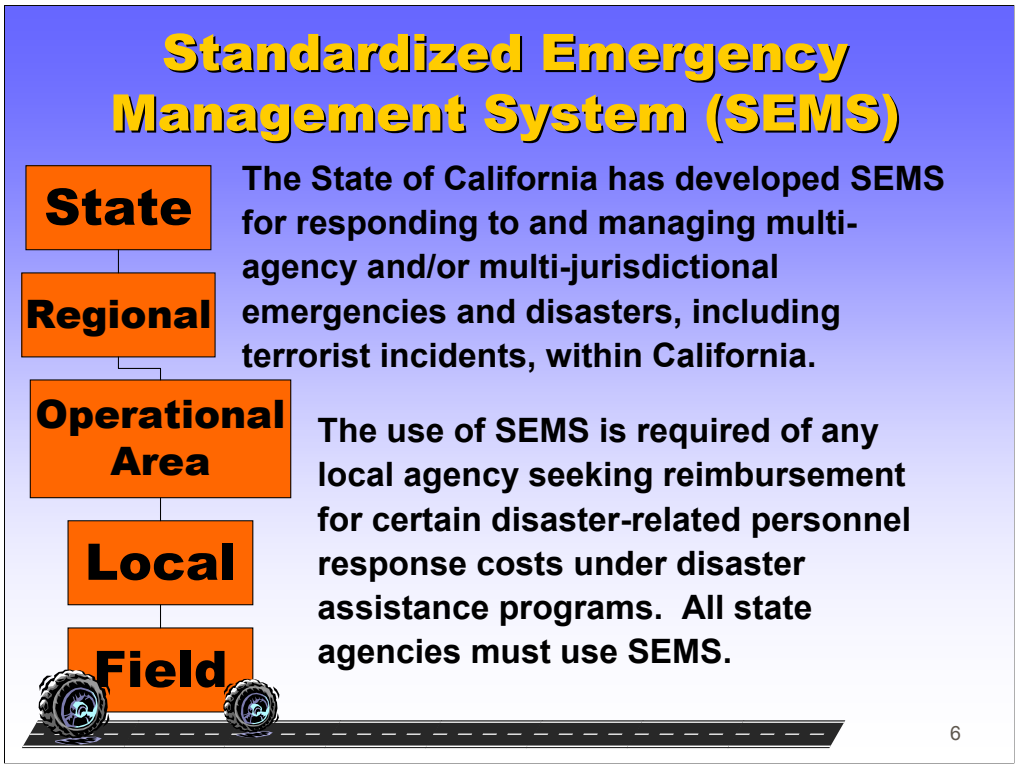
State of California Radiological Emergency Assistance Resources

- Local Fire and Hazmat Responders
- County Department of Health Services
- State Department of Health Services, Radiologic Health Branch
- Office of Emergency Services
- National Guard Civil Support Teams
- Federal Assistance Also Available:
  - Local DOE Radiological Assistance Program (RAP) Teams
  - Other National Assistance (FEMA)


Diablo Canyon (DCPP)


San Onofre (SONGS)

There are many support organizations that can assist in a radiological emergency response.



The five SEMS organization levels, together with the private sector, are also collectively referred to as the California Emergency Organization (see definitions). This organization represents all resources available within the state, which may be applied to disaster response and recovery. It operates from established Emergency Operations Centers (EOCs) at all levels of government, as well as in many businesses and industries. The goal is to support emergency activities which protect life, property, and the environment. In addition, a number of discipline-specific mutual aid sub-systems have been developed in California to support the emergency management structure.

The following are the five levels of SEMS:

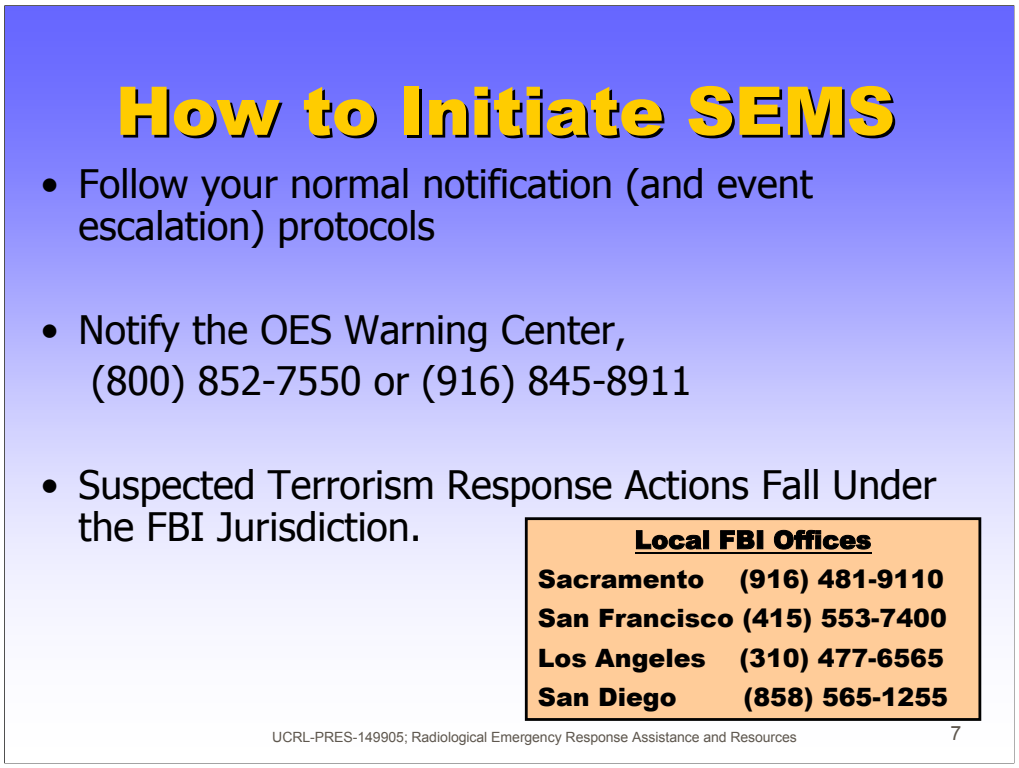
State: Statewide resource coordination among the regions and with federal agencies. Refer to the *California-Federal Emergency Operations Center Guidelines* for more information regarding state-federal operations at this level.

Regional: Manages and coordinates information and resources, including state resources, among Operational Areas within the region. Coordinates mutual aid and allocation of essential supplies and equipment within the region. Interfaces at the regional level with federal Emergency Support Functions. Refer to the *California-Federal Emergency Operations Center Guidelines* for more information regarding state-federal operations at this level.

Operational Area: Manages and coordinates information among all local governments within the geographical boundaries of a county. Provides communication and coordination between local governments and the region.

Local: County, city and county, city, or special district. Have primary responsibility for the protection of the health, safety, and property/resources of its citizens.

Field: Onscene responders from a variety of emergency response organizations with direct control of resources and response functions at the scene of a disaster.



If you suspect the incident involves terrorism, at any level of the response, in addition to the above actions, immediately:

Call the nearest FBI Field Office and inform them of the situation.

Sacramento	(916) 481-9110
San Francisco	(415) 553-7400
Los Angeles	(310) 477-6565
San Diego	(858) 565-1255

California Office of Emergency Services

Under the authority of the Emergency Services Act and other legislation, OES mitigates, plans and prepares for, responds to, and aids in recovery from the effects of emergencies that threaten lives, property, and the environment.

RADIOLOGICAL
PREPAREDNESS UNIT

National Guard Civil Support Teams

95th Weapons of Mass Destruction Civil Support Team
Hayward, California

Assess

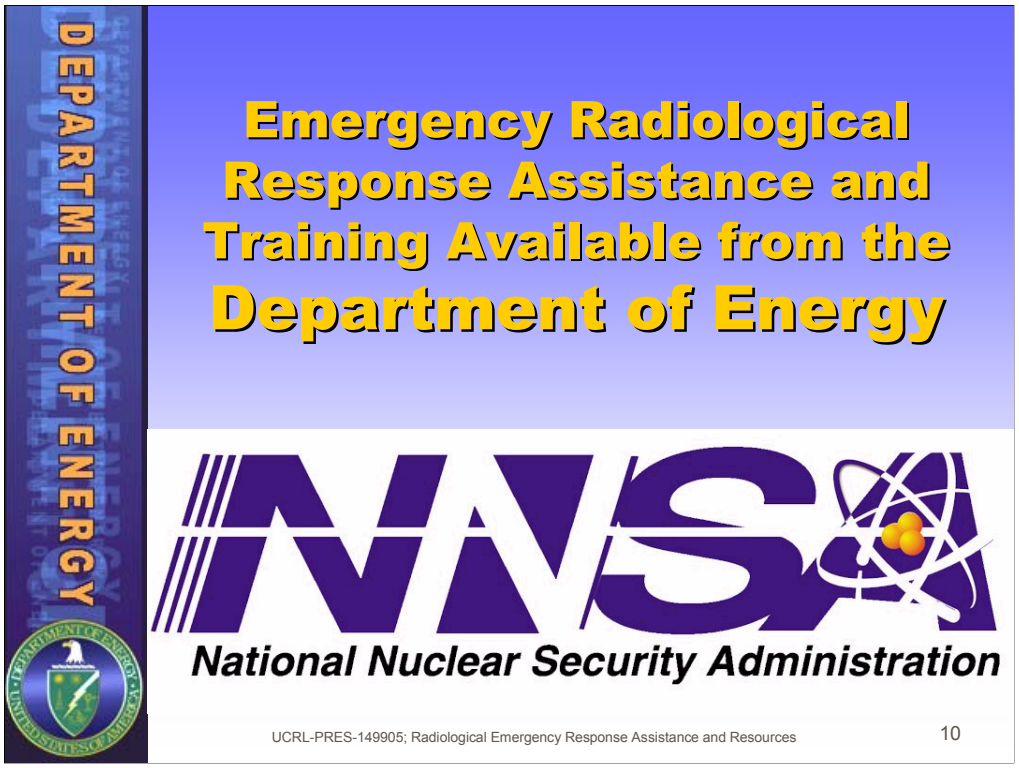
- Damage to Infrastructure
- Damage to Populace
- ID Chemical Hazard
- ID Biological Hazard
- ID Radiological Hazard

Advise

- Vulnerabilities
- Anti-terrorism Actions
- Response & Recovery
- Emergency Preparation
- Safeguard the Populace
- Follow-on Support

Facilitate

- Situational Understanding
- Preparatory Activities
- RFA Development
- Communication Support
- Analytical Support
- Follow-on Support


DEPARTMENT OF ENERGY
Emergency Radiological Response Assistance and Training Available from the Department of Energy
National Nuclear Security Administration
UCRL-PRES-149905; Radiological Emergency Response Assistance and Resources
10

The Department of Energy

- Facilities throughout the US with a large staff experienced with radioactive material and emergency response.
- Experts in nuclear weapon systems, radiation safety, threat assessment, detector technology, and smuggling intervention.
- Responsible for coordinating the monitoring and assessment of a national radiological emergency.
- Partners in emergency response.

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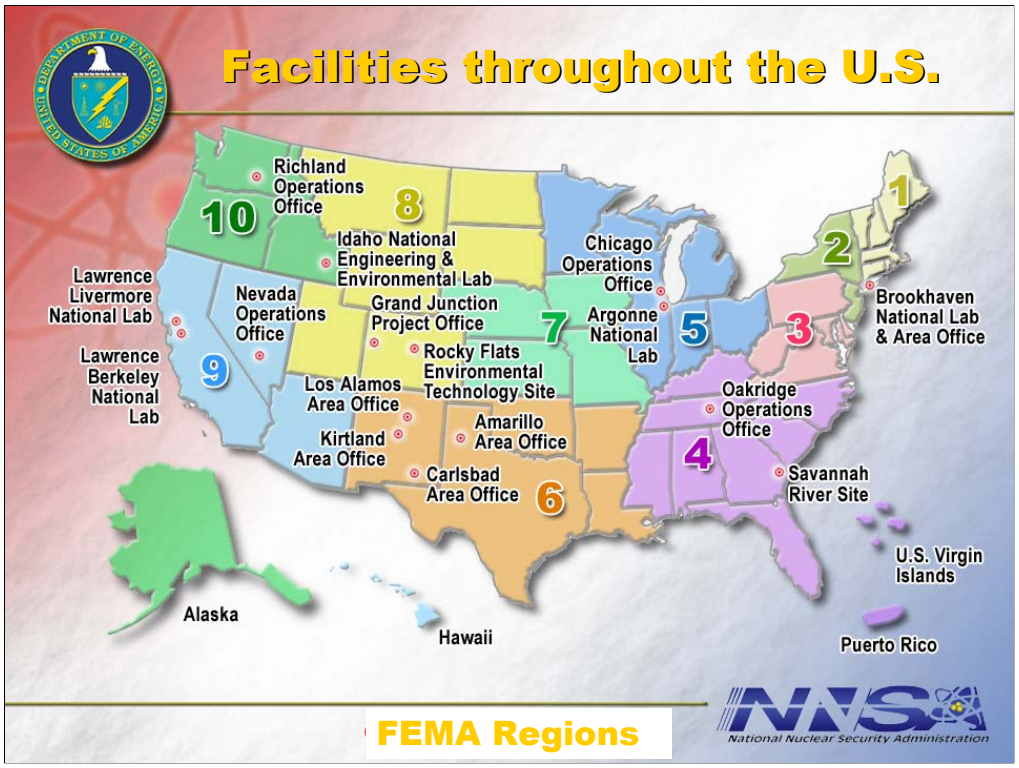


Nuclear Emergency Support Team (NEST)
Detecting Lost (or Hidden) Sources of Radiation

- Large, sensitive radiation detectors that can be:
  - mounted in Helicopters
  - mounted in aircraft
  - mounted in Vehicles, or
  - Hand carried

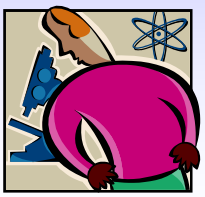
- Finding unlicensed radioactive materials as it enters or moves within the United States.

I tried to use the new language here instead if SRT and NEST.

Not sure of the sensitivity level of this information. This is the same information provided on in the public “blue folders”

Nuclear Emergency Support Team (NEST)
Helping to Identify Unknown Radioactive Material

- NNSA has advanced field instrumentation capable of identifying the exact isotope of radioactive material.
- "Nuclear Triage" Concept, where instrument readings taken in the field can be remotely reviewed by an expert in NNSA.
- Once identified, NNSA can offer additional advice or assistance to properly manage the material.



Again, new language.

If Radioactive Material is spread through accident or intent, NNSA can help

- **Radiological Assistance Program (RAP)**
  Regional emergency responders who are experts in radiological issues and response. These initial responders can call on the assets below as needed.
- **Radiation Emergency Assistance Center/Training Site (REAC/TS)**
  Provides medical advice, specialized training, and the unique capability of on-site assistance for the treatment of all types of radiation exposure accidents.
- **National Atmospheric Release Advisory Center (NARAC)**
  Provides atmospheric dispersion modeling to generate potential population exposures and PAG effected areas.
- **Aerial Measurement System (AMS)**
  Sensitive detectors mounted on airframes to accurately measure contamination.
- **Accident Response Group (ARG)**
  Provides safe recovery and transport for accidents involving nuclear weapons.
- **Federal Radiological Monitoring and Assessment Center (FRMAC)**
  Helps coordinate monitoring and assessment data with other federal agencies.

Subsequent slide will cover this material in more detail, but if you are running out of time then give a verbal and stop here.

Radiological Assistance Program (RAP)

- Regional, On-Call Responders
- Specialized Equipment
- All Volunteers with Extensive Radiological Experience
- Outreach to help 1st Responder Preparation
- Tailored Response that provides access to **all of DOE assets.**

Discuss that RAP is their doorway to all of DOE assets.

Responses can be a trivial as getting phone advise to a full blown event that requires all of the DOE assets about to be discussed.

Most common response is a low-key site visit involving a few, non uniformed, RAP experts.

REAC/TS MISSION STATEMENT

- The Radiation Emergency Assistance Center/Training Site (REAC/TS) provides:
  - medical advice
  - specialized training, and
  - on-site assistance for the treatment of all types of radiation exposure accidents.
- 24-hour response center to provide direct support, including deployable equipment and personnel trained and experienced in the treatment of radiation exposure.
- REAC/TS also manages the national use of drugs used to treat internally deposited radioactive material.
  - *In continuous operation since June 1976*

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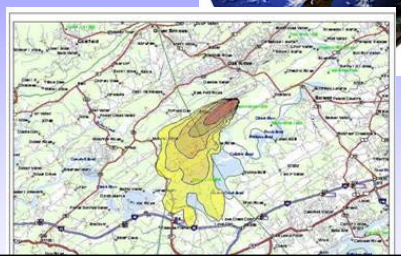
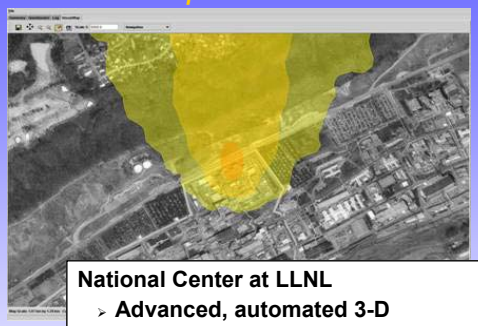
National Atmospheric Release Advisory Center (NARAC)

Real-time advisories for hazardous atmospheric releases

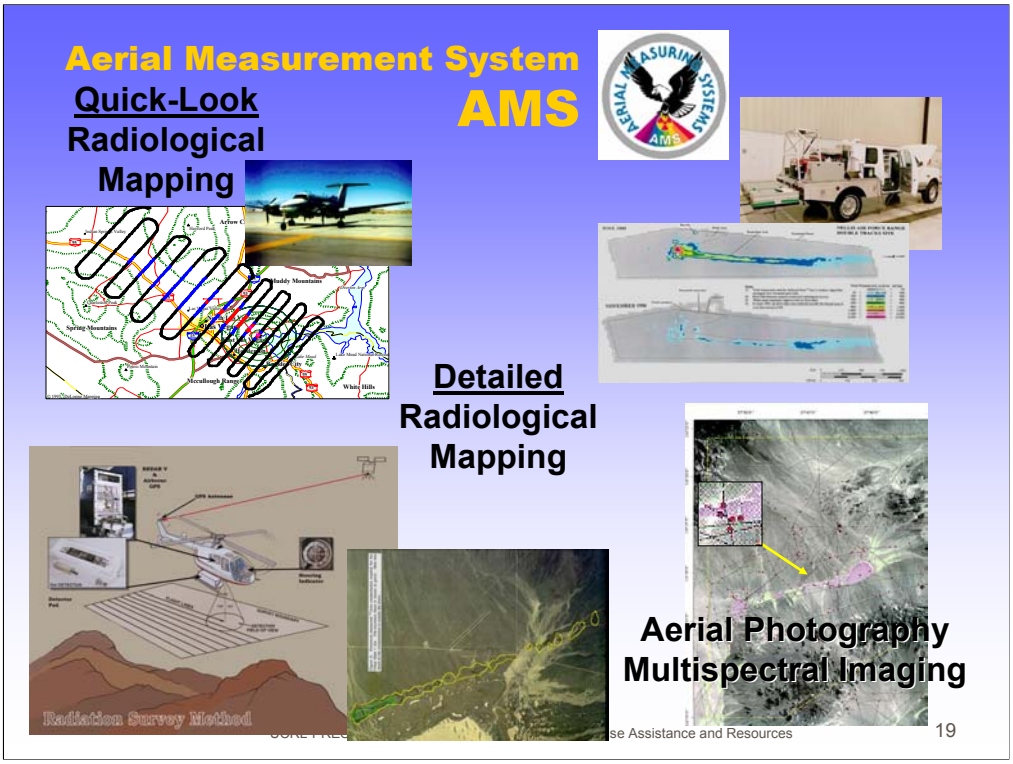
World-wide data coverage
- Real-time weather data
- Terrain & land surface
- Maps





National Center at LLNL
- Advanced, automated 3-D modeling system
- Scientific and technical staff provides training and assistance 24 hrs x 7 days

Real-time Hazard Advisories
- Nuclear, radiological, chemical, biological & natural releases
- National center predictions available within minutes using Internet/Web tools
- Deployed modeling tools on end user's computer
- Geographical information displays
- Affected population, health risks, recommended actions



Quick-Look Mapping – 1ST responder, prepositioned at Nellis & Andrews AFB, 4 hours wheels up, exposure rate map delivered upon landing and via telemetry, flight path color coded by exposure rate at 1 meter.

Detailed Mapping – High sensitivity & spatial resuloution, follow up to fixed-wing, 1st responder for nuclear weapon accident, full spectral capability (12l NaI), contour maps of concentration delivered 2 hours after landing. Example is Clean Slate I Am-241 visible 6 mi. downwind.

Aerial Photography – Vertical and oblique photos for scene documentation and mapping.

Multi Spectral Imaging – Images exploited to delineate features of interest, e.g., land use, damage, buried objects…

Example shows disturbed earth (dig sites) detected by MSS analysis on aerial photo processed as 7.5 minute orthophoto map to USGS map standards.

The Van is “Kiwi”, a flightless bird. We put the areial system in the vehicle and map very high resolution maps. It was build to DU and Pu. Works great

Accident Response Group (ARG)

- Collaborative effort between the **Department of Energy** and the **Department of Defense** to ensure the safety of America's Nuclear Weapon Stockpile.
- In the event of an accident involving a nuclear weapon, these agencies work together to ensure the **safety** and **security** of weapon recovery, transportation, and disposition operations.

Liquid abrasive cutter. Cutting a spar from a cruise missile

Fiberscope system used to examine internal condition of a warhead electrical system

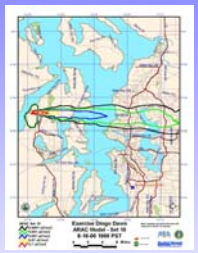
Source:

LALP-98-96 August 1998

Federal Radiological Monitoring and Assessment Center (FRMAC)

Consequence Management

- FRMAC provides the infrastructure for interagency cooperation
- Measurement database and Graphical Information System helps incorporate and display information quickly.
- Specialists provide expert radiological health assessments.
- Additional capabilities for Extended hotline and personnel monitoring support.
- Mobile radiological laboratories quickly evaluate samples.



TRAINING and OUTREACH

- DOE has a variety of regional and national training and outreach efforts, including:
  - Transportation Emergency Preparedness Program (TEPP)
  - Instrumentation workshops
  - Drill & exercise participation
  - Counter terrorist and Emergency Operations Training Academies
  - Specialized training may be available on request

For more information on NNSA training and outreach efforts in your area, contact your local Regional Response Coordinator. Contact info at the end of the presentation

Emergency Operations Training Academy

Mission:
Ensure the **effective and efficient** training of emergency operations personnel throughout the Department of Energy who are, or may become involved in the **Planning, Preparedness**, and **Response** of **vital national resources**.

For more information or a schedule of courses or available distributed computer based training materials ,
Visit www.eota.doe.gov or call (505) 845-5170 ext.172

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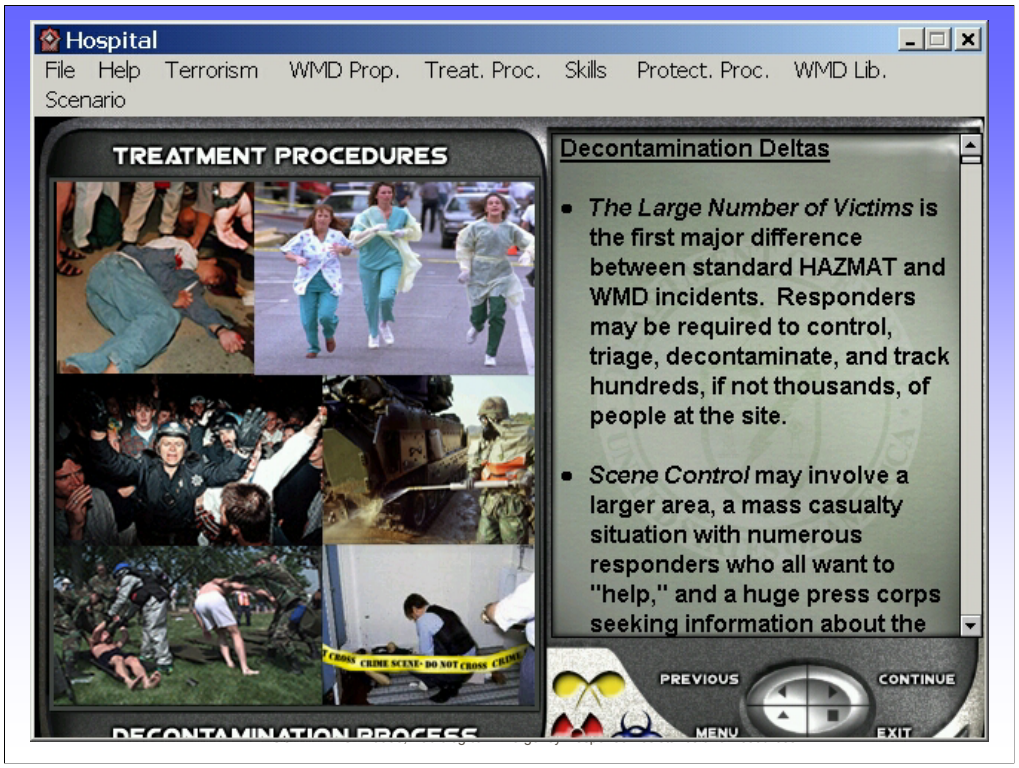


One of the products that EOTA produces is Computer Based training or CBT. This interactive training distributed on 8 CDs is a multimedia rich interactive training to provide self paced individual training at the hospital or EMS facility.

(DOJ) TRAINING AT NEVADA TEST SITE
COUNTER TERRORISM OPERATIONS SUPPORT

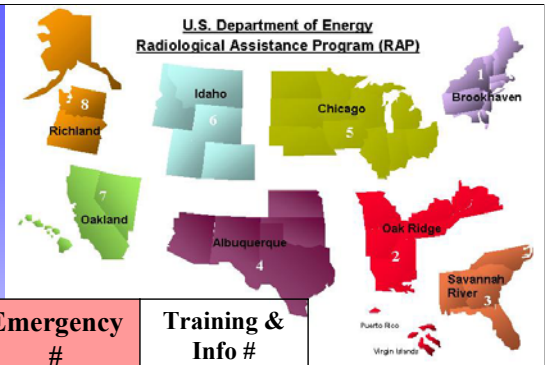
- **Conducts five weapons of mass destruction (WMD) training courses for dept of justice office of domestic preparedness**
  - **Instruction and hands-on drills train-the-trainer course with classroom**
  - **Hazardous material (hazmat) technician**
  - **WMD radiological/nuclear responder course**
  - **Weapons of mass destruction (WMD) practical exercise course**
  - **Weapons of mass destruction (WMD) exercise development course**
- **Conducts training for national guard civil support teams**

CONTACT JAMES SUDDERTH AT (702) 295-2559 FOR MORE INFORMATION

Conclusion:
Department Of Energy Assistance

- DOE has several emergency response assets that can help others manage radiological incidences.
- Training and outreach efforts can better prepare responders for radiological accidents or events.
- DOE facilities are distributed throughout the US and provide local response capability.

DOE Emergency Assistance or Training Info, Contact:



Region	NNSA Regional Response Coordinator	Emergency #	Training & Info #
1	Steve Centore	(631) 344-2200	(631) 344-7309
2	Steve M. Johnson	(865) 576-1005	(865) 576-9740
3	Christina T. Edwards	(803) 725-3333	(803) 952-6613
4	James E. Straka	(505) 845-4667	(505) 845-5581
5	Christine Van Horn	(630) 252-5731	(630) 252-2498
6	Steven A. Morreale	(208) 526-1515	(208) 526-0199
7	Mike Cornell	(925) 422-8951	(925) 422-0138
8	Kathy Beecher	(509) 373-3800	(509) 376-8519
HQ	Duty Officer, Washington, DC	(202) 586-8100	(202) 586-3201

References (1 of 2)

RadEFX(sm) Ionizing Radiation Health Effects Forum
Copyright © 1994-1997 Baylor College of Medicine, All rights reserved.
http://radefx.bcm.tmc.edu/ionizing/subject/risk/acute.htm

Disaster Preparedness for Radiology Professionals
Response to Radiological Terrorism
A Primer for Radiologists, Radiation Oncologists and Medical Physicists
©2002 American College of Radiology
http://www.acr.org/departments/educ/disaster_prep/disaster-planning.pdf

Uranium Information Centre
Melbourne, Australia
http://www.uic.com.au/index.htm

Transportation Emergency Preparedness Program (TEPP)
http://www.em.doe.gov/otem/program.html

Large Sources of Radioactive Material, SNL 02-024
Bill Rhodes, Fred Harper, Marvin Larsen

References

A Practical Guide To Incident Response, **ARSCE 2002; WPM-A.4**
James G. Barnes, CHP Rocketdyne/Boeing

Civil Support Team in Action
(http://call.army.mil/products/trngqtr/tq3-02/borel.htm)
Major Adrian T. Bogart III, National Guard Bureau's Civil Support Office and Major William L. "Lynn" Borel, Jr., ARNG Liaison

What Disaster Response Management Can Learn From Chaos Theory
(http://www.library.ca.gov/CRB/96/05/over_2.html#Heading5)

Various informal OES presentations supplied by
Bill Potter, Coordinator (Radiological), Governor's Office of Emergency Services, Radiological Preparedness Unit

The Department of Energy's "Partners in Emergency Response" Publication